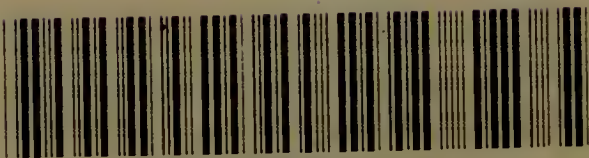


HANDBOOK

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INFANT HEALTH WORKERS

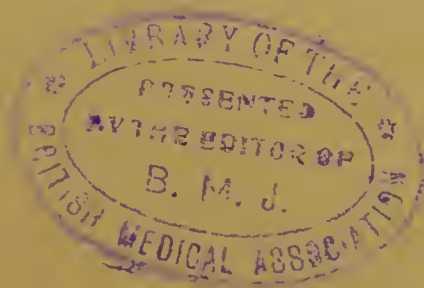
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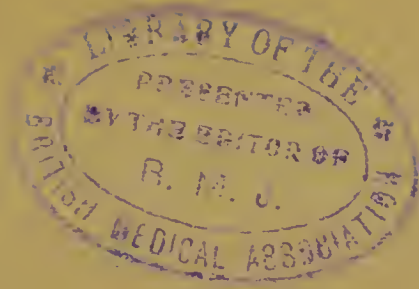


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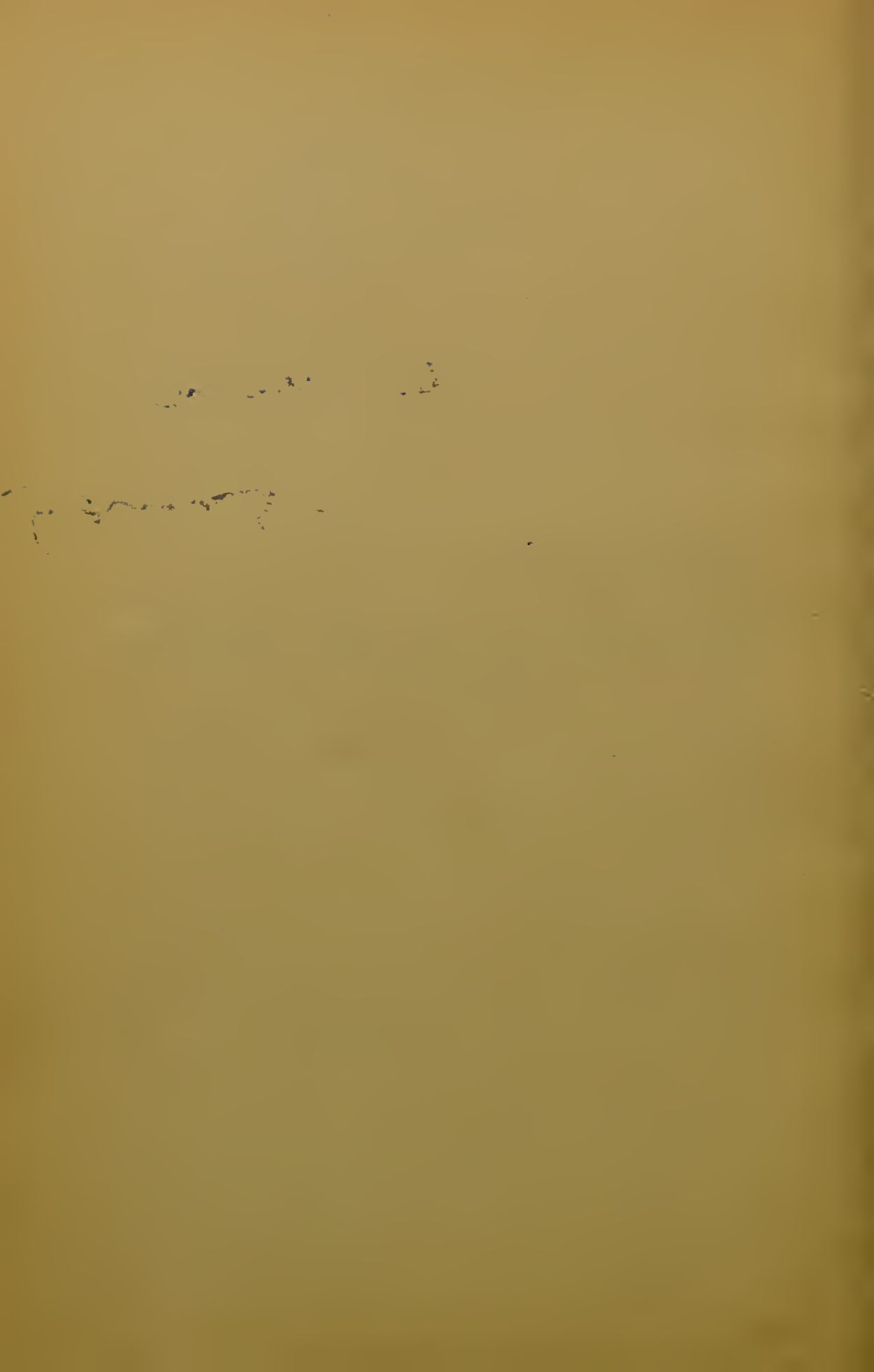
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HANDBOOK FOR INFANT HEALTH WORKERS

In connection with Schools for Mothers

BY

R. MANWOOD H. WALFORD

M.R.C.S.ENG., L.R.C.P.LOND.

*Clinical Assistant, Hospital for Sick Children, Great Ormond Street, W.C. ;
Hon. Medical Officer, North St. Pancras School for Mothers and
Hampstead Infant Health Society*



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PREFACE.

THE question of studying and improving the health of our children, particularly amongst the poor, and the reduction of the terrible mortality in the early months of life having at last come to the front, numerous schools for mothers or infant health societies have arisen.

I have thought that a small and simple Handbook might be of great help to those voluntary helpers who kindly act as visitors, and do so much good by seeing that the doctor's instructions are fully carried out in an intelligent and able manner by the mothers.

The chief part of the work is the feeding of the young babies, of which there is an appalling ignorance. Infant health societies are specially formed to surmount the difficulties that so often arise where breast-feeding fails.

I have made my scale of infant feeding as simple as possible, and it is the one which I have found to work best amongst all classes, in that it reduces the

expense and labour of preparation to a minimum, since anything at all elaborate is in most cases quite unattainable.

After the first few months of life, again the food of children is still a very important factor, much suffering and illness having been caused by ignorance and carelessness in this direction.

I have purposely avoided figures and statistics, as they are quite unnecessary in a work of this type.

In dealing with even young babies we have to bear in mind the personal element as to likes and dislikes and idiosyncrasies which are manifest very early, and have to be taken into consideration, for some children cannot tolerate certain foods and drugs which are in everyday use for others. Therefore we cannot carry out any hard and fast line in every case, and sometimes much judgment is required in dealing with certain children.

I am very grateful to Dr. R. Hutchison for his kindness and trouble in looking over the manuscript and the help he has been to me in so many ways in this work.

I hope this book may be of use to others besides our health visitors.

R. M. H. W.

244, *Finchley Road, N.W.*

March, 1914.

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HANDBOOK FOR INFANT HEALTH WORKERS.

CHAPTER I.

BREAST-FEEDING AND ITS DIFFICULTIES.

THERE can be no doubt that breast milk is the proper food for babies, at all events in the early months of life, and every effort should be made on the part of the mother to fulfil this obligation to her child, particularly if the weather be at all hot, to avoid the great risk of diarrhœa so common then, especially amongst hand-fed children.

We should have much less disease if this responsibility were not shirked, and it is much to be regretted that some doctors are so ready to advise the abandoning of breast-feeding without due consideration.

There is no doubt that it is of benefit to the health of the mother, besides the feeling of satisfaction and the great moral effect and influence she is able to bring to bear upon her baby by nursing it.

But, on the other hand, we must not look upon breast-feeding as the one and only thing to be carried on at all costs and under all circumstances, anxious as we may be to continue it, for there are frequently cases where after careful consideration we are obliged to abandon it.

For some reason or other, with all the care we may take to improve matters, the milk fails in quality and quantity, and the baby wastes, or in a few cases the milk does not suit one infant, although it may be proved to be quite good by the fact that another thrives upon it. We must be on our guard against the mother taking drugs, which affect the milk and either disagree with the baby or make it obnoxious to him; so that he refuses to continue it. There are cases too in which for some reason the mother has to partially or entirely leave her child; a mother with tubercle should not nurse her baby.

Breast-feeding should, if the mother's condition admit of it, be commenced within an hour or two of birth, the infant being put to the breast about four times in the first twenty-four hours and six times in the second.

The milk does not usually "come in" until the third day after birth, but putting the baby to the breast during that time has a beneficial effect upon the mother's condition, and the baby obtains a little

greenish yellow material looking somewhat like milk, called colostrum, which is a sort of human castor oil, very necessary to clear out the intestines, which are at that time full of a dark tarry-looking material, meconium, before commencing its normal food.

There need be no fear of the baby starving at this time, because for reasons that I need not enter into no food is needed, except in a few cases where there is much crying, when we may have to allow, once or twice, a teaspoonful or two of very weak milk and water. At this time, however, it is very necessary for there to be a fair amount of crying to satisfactorily expand the lungs, which at birth were quite collapsed, and unless they are well expanded at once we have trouble, and the infant is not of a good colour until it has had a good cry.

After the second day, feeding should be two-hourly by day and at a rather longer interval at night, until we reach the end of the second month, when we slowly lengthen the time until it is three-hourly by day at the end of the third month, with two feeds at night. From the third month onwards feeding should be three-hourly by day, dropping first one feed at night and then the other, so that at six months he is fed by day only, and that three-hourly; allowing the child to be at the breast all night must *not* be allowed, being bad for both mother and child.

Some breasts yield the milk much too fast; this can be regulated by the mother holding the nipple and adjacent part of the breast between the fingers and compressing it. Too fast feeding usually causes sickness and flatulence.

Breast-feeding should not as a rule be continued for more than nine months except under such circumstances as very hot weather, to avoid the risks of summer diarrhoea, or the mother having to go abroad, here avoiding frequent changes of food and its risks. Usually at about nine months the quantity and quality begin to fail; and, besides this, the baby now requires more than the mother can supply, and frequently I find mothers even before this time begin to suffer from neuralgia and other signs of exhaustion from over-suckling. Some mothers wish to continue longer, with the idea that it prevents pregnancy recurring, but this is not the case, and over-suckling is frequently the cause of rickets and anæmia in the babies.

Weaning.

It is wise, I consider, about the seventh month or even earlier, to begin to omit one meal, say, in the middle of the day, and substitute an artificial feed of some sort, and as time goes on a second and third meal can be dropped, thus slowly accustoming the child to another method of feeding and also

gradually weaning him, so that by the end of the ninth month he will have been almost unconsciously weaned, and the supply too will have nearly stopped spontaneously; finally the breasts can be emptied by a few doses of some aperient like Epsom salts, and there is no more trouble.

This I consider to be the best method of weaning for both mother and child, there being no sudden change for either. It is most unwise to wean quite suddenly, except in a case of emergency, such as abscess of the breast, sudden illness or accident, when it may be necessary.

Even in a short acute illness it may be necessary only to temporarily wean the child, the breasts being drawn meanwhile, and artificial feeding resorted to until the mother is well again. In a few urgent cases it may be necessary to use belladonna plasters, but bitter things such as aloes should never be put on the nipples to discourage suckling.

Difficulties in Breast-feeding.

So far, I have considered that all has gone well with our supply of breast milk, but unfortunately this is not always the case. A good supply of milk being dependent upon so many circumstances, such as the feeding, health, surroundings, work and worries of the mother, it is not to be wondered at that one finds frequently mothers with babies of even three

months of age, or younger, in whom the milk supply is failing already and the child is obviously not thriving.

Weighing the child before and after a feed may show a deficiency in the quantity, or the quantity may easily be sufficient but the quality may not be satisfactory. A method of meeting this difficulty has been suggested by supplementing each breast-feed by an artificial one, equivalent to the amount found by weighing to be missing from the normal quantity required; but here we have no idea of the quality of what is being obtained, and we are taxing a breast which is obviously not up to its work, to say nothing of the mental worry to the mother to think that she is not capable of feeding her baby satisfactorily.

I do not consider this at all a good method, as it is quite contrary to the usual custom prevailing in medicine, which is to rest a failing part and not to overtax it. To get any idea of amount of milk missing the child must be weighed not once but before and after a large number of breast-feedings, hence such a method is rarely possible to carry out. Therefore we give the breast a rest by omitting a feed or two in the middle of the day and substituting corresponding artificial feeds.

This I find in many cases has the desired effect, and in a week or two the breast-supply has returned

to its normal amount, the child recommences to thrive, and the mother is greatly relieved to find that she is again fully capable of fulfilling her duties in this respect.

Sometimes, however, this is not successful and the milk fails entirely, but it is well worth trying.

Regularity of Feeding.

It is *very important*, for two reasons—that babies should be fed at *very regular* intervals, as if too frequent there is not a sufficient time for the breast to prepare a fresh supply, the quality drops, and on the other hand the previous feed will not have cleared out of the stomach, so that it contains milk in various stages of digestion with resulting indigestion. The “flow” coming in at regular intervals also necessitates an observance of regularity.

Feeding three-hourly as we do after three months means a supply of milk of a better quality than obtains when feeding two-hourly, and therefore more suited to the older baby’s requirements; it is often astonishing to see the improvement made by lengthening the period of feeding.

It is wise to commence by waking the baby for his feeds, and he will soon learn to wake at regular intervals and after a feed go to sleep again, a point of great benefit to the mother, who is able to attend to her other duties without the baby continually worrying her for food.

CHAPTER II.

CARE OF THE NURSING MOTHER.

THE health of the mother during the period of nursing requires some attention, especially if there is any failure of milk supply. It is necessary to see that she has, as far as possible, a proper supply of good food, fresh air, and outdoor exercise—if possible going out every day—proper rest, especially at night; hence the great importance of early dropping the night feeds.

Any unnecessary labour or worry should be avoided, if possible, and attention paid to the condition of the bowels, avoiding constipation and any undue looseness.

Attention to the condition of the teeth is necessary, as the presence of carious teeth contributes to faulty digestion and hence to scanty milk supply.

When the supply is thin and watery a liberal diet of meat, fish, eggs, &c., and some malt given daily will help to improve the quality. She should also drink a plentiful supply of watery fluids, tea, milk, water, &c., as 87 per cent. of milk consisting of water much will be required, otherwise the milk

will be too concentrated and there will be constipation on the part of both mother and child.

Alcohol, beer, stout, &c., are not necessary; on the contrary they are harmful, being in some way deleterious to the milk. As far as possible any drugs should be avoided, particularly strong aperients.

Care of the Breasts.

To ensure a good supply of milk it is very necessary to attend to the breasts and nipples both before and after the birth of the child. Frequently during the last two months of pregnancy there is milk in the breasts, sometimes running away; this is of no importance. But it is very necessary to attend to the nipples at this time, getting them into a good supple condition, free from cracks, ready for suckling. They should be well washed daily, and after drying, washed over with a little spirit to ensure complete dryness; and it is necessary to see that there is no undue pressure from clothing at this time, as the breasts will be steadily enlarging now.

After the confinement extra care will be required. After each suckling the nipples should be well washed with clean water, or preferably a weak boracic acid lotion, dried with spirit (methylated, brandy, or eau de Cologne), and then dusted with a little boracic acid powder. The object of this

is to avoid the nipple or areolæ around the nipples becoming cracked, as this means pain on suckling and a reluctance on the part of the mother to continue, or it even may cause a failure of milk.

Cracked nipples are a fertile source of abscess of the breast by the crack becoming infected and the consequent inflammation spreading along the milk-ducts, setting up inflammation and perhaps abscess in the breast itself, and so terminating lactation, besides damage to the gland itself.

Should a crack appear, all the instructions I have given above should be carried out, a glass nipple-shield used, and any infective conditions in the child's mouth carefully attended to. The shield and its teat must be kept scrupulously clean, and should, when not in use, be kept in boracic acid lotion, being finally washed with boiled water before use.

Sometimes in the early days of lactation there is much pain and trouble caused by the excessive fulness of the breasts, especially at certain times in the day when the "flow" comes in; this I think is accentuated in young mothers. It may easily be relieved by a little *gentle* rubbing, the method being to grasp the left breast with the right hand and *vice versa*, the nipple being between the thumb and first finger and the other fingers supporting the breast below, which is thus held and gently rolled round

and round on the ribs below, the fingers being kept quite still and passive. Should any pain be caused in doing this it must be discontinued at once.

Sometimes much pain is caused by the weight of a heavy breast, especially in stout women, dragging upon the shoulders. This can at once be relieved by slinging either or both breasts up, which can be easily done by using a large handkerchief folded from opposite corners to make a sling about three inches wide in the middle ; this is placed under the breast, one part goes round the back, meeting the other end over the opposite shoulder where the two ends are tied together ; both breasts can be done in this manner, using two slings. The St. John Ambulance "narrow bandage" does very well for the purpose.

Not unfrequently there is milk in the breasts of the newly-born, both boys and girls. This is of no importance, and if left alone disappears in about a fortnight. The breasts in this case should be kept scrupulously clean, and *not squeezed or pressed* upon in any way. If they happen to be damaged abscess may easily follow, with permanent damage to the breast, or perhaps worse troubles.

CHAPTER III.

ARTIFICIAL FEEDING.

I SUPPOSE that to the uninitiated nothing would seem easier than to feed a baby when the breast has failed—for a baby requires milk, and cows and many animals yield milk, and the assumption would be that one milk would do as well as another, but unfortunately this is not the case, for the milks of the various animals vary in their constituents according to the circumstances under which their young have to exist. For instance, as the calf has to grow very fast cow's milk has to have a much larger share of body-building material than human milk, whilst the milk of a seal or a whale contains much more fat for heat production than either human or cow's milk does. Comparing human and cow's milk, from an analysis made by Dr. Still, the proportions are, per cent. :—

				Human	Cow's
Proteid or body building	{	Casein ...	...	0'6	3'25
		Lactalbumen ...	...	1'4	0'75
Fats	...	...	...	3'5	3'5
Sugars	...	...	...	7'0	4'0

Thus, whilst human milk contains the same amount of fat, it is nearly twice as sweet as cow's

milk, but human milk contains only half the proteid or body-building material that cow's milk does, and of this human milk contains about one-fifth part of the proteid casein that cow's milk does, and it is chiefly this ingredient which seems to cause the difficulty in feeding human babies, for they are unable, in the earlier months of life at least, to digest much of the casein. Hence, at the expense of the other constituents, we have to dilute the milk with water to reduce this excess of casein.

As in the early months we have to dilute cow's milk with double the quantity of water, the casein comes down now to 1·1 per cent., which is tolerated by most babies, but the percentages of fat and sugar now are only 1·2 and 1·3 respectively; they are of course too low, but somehow this does not seem to matter so very much and works very well. But by adding a little sugar and cream we can make a very good substitute for human milk. A feed of one ounce of milk with two ounces of water, adding a large teaspoonful of cream (separated) and a level teaspoonful of milk sugar, contains practically the constituents and proportions of human milk, and will do very well for a baby under 2 months of age. The lactalbumen is short of the correct amount, but it does not seem to matter in practice, but can be added by using whey instead of water as a diluent if we so desire.

There are many and very elaborate prescriptions by which milk can be diluted and added to, similar to that which I have shown, so that the resulting mixture may be exactly the same as any given specimen of human milk, but all this means a great deal of trouble, and when we consider that a baby fed on an average eight times in the twenty-four hours requires about 1,500 feeds in the first six months of life we shall do well to reduce our plans down to the simplest we possibly can. As no two infants can be handled in quite the same way, we have to vary our scheme of feeding accordingly; but by long experience I have found that most children will thrive well when fed artificially on the lines I give below, but of course here and there we have to modify considerably, either to increase the strength of the milk or to diminish.

In dealing with an artificially-fed infant beware of overfeeding, for I am convinced that far more trouble and distress are caused by over than by under feeding, even in breast-feeding. The infant stomach is small, and cannot without harm hold very much. A good working average for quantity of feed for a meal is to allow one ounce for each month of age and one additional one, so that a baby of 1 month will have a two-ounce feed, one of 3 months a four-ounce feed, and so on.

Proportions of Milk and Water.

For children under three months of age the proportion should be 1 of milk to 2 of water; at three months equal parts of milk and water, and from now the quantity of water remains stationary, the amount of milk being increased, until at six months the child has 2 parts milk to 1 of water, at nine months it is 3 to 1.

Thus the proportions, for convenience expressed in tablespoons or half ounces :—

Age		Milk		Water		Total
1 month	...	1½	...	3	=	2 oz.
3 months	...	4	...	4	=	4 „
6 „	...	8	...	4	=	6 „
9 „	...	12	...	4	=	8 „

the quantities being gradually increased as the age increases, and not by any sudden jump from one strength to another; at ten months practically pure milk can be given. A small quantity of sugar can be added, such as a small lump to a three-ounce feed.

I do not much care for the addition of cream; and here a word of caution in its use, for if we use separated cream, such as we can obtain from most dairies, it is about double the strength of skimmed cream, that is to say the proportion of fat is double, and we may have trouble from the presence of a preservative in it; the maximum proportion of this

must be at the rate of 1 teaspoonful to 3 ounces of the feed.

Skimmed cream, or gravity cream as it is called, has the advantage of having no preservative, but there is the additional risk of the milk having had to stand for some hours in order that the cream may rise to the surface, and in consequence liability of contamination meanwhile ; if we use this we have to allow double the quantity we should if it were separated cream. In practice I find the addition of cream is very rarely necessary, though it has been of great value where there is much constipation.

The method I have given above has worked with me extremely well, especially for children over two or three months of age ; but under that age, as Dr. R. Hutchison points out, it is much more satisfactory when we do have to rear a baby during the first two months of life to put it at once on to Nestlé's milk when the breast fails, and during the third month on to equal parts of milk and water.

This method I have proved for myself to be extremely good, particularly in the more delicate infants, and at this early age has no risk.

Sometimes barley-water is used as a diluent, and is at times of value to make a softer and more digestible curd, but on the other hand it is giving starch and is a frequent cause of flatulence and diarrhœa, and still more frequently a cause of sore buttocks,

and so has to be abandoned. Rice water has less disadvantages and is a more satisfactory diluent. Sometimes milk has to be citrated. This is done by adding a small amount of citrate of soda to each feed, and has the effect of making a finer and more digestible curd. (*See Appendix.*)

The Nestlé's milk mixture can be similarly citrated with good effect. The easiest method is to have the citrate in solution (*see Appendix*) and add the amount to each feed, or if necessary when breast-feeding to give the quantity before each feed. It is rather inclined to cause constipation, and should not be carried on for a very long period. Occasionally we have to use peptonized milk in very delicate babies. Lime water is not necessary; I think rather harmful, if anything.

Condensed Milk.

After fresh cow's milk, condensed milk has many advantages, Nestlé's in particular I find very useful—I mean Nestlé's milk, not the food of that name—the mistake usually being that it is not sufficiently diluted. In hot weather, when there is great risk of summer diarrhoea from even slightly-tainted milk, and for infants under three months of age, it comes in extremely useful as a sole diet in these cases. Under three months there is no risk of scurvy, but after this time it cannot be used long without some

anti-scorbutic precautions such as grape or orange juice, and this applies equally to sterilized milk, which is very rarely necessary. Nestlé's should be diluted in the proportion of one teaspoonful to six tablespoonfuls of water; this quantity does very well for young infants under three months, and later on I increase the quantity, retaining the same proportion of dilution. I have found amongst the poor the necessity for using condensed milk where one would not otherwise do it on account of the expense involved in obtaining a sufficient quantity of fresh cow's milk, and, too, the difficulty in keeping milk long enough in a satisfactory condition for use.

I have mentioned the word scurvy several times, and must explain that I do not mean eczema, which is popularly called by this name, but a very different disease.

Glaxo, a dried and powdered milk, is another very useful material by which to make a satisfactory diet for infants, and has many advantages; it is milk, only with a little sugar added, no starch, and it is not easily liable to contamination by bacteria. It comes in very useful in hot weather where fresh milk is not safe, or in travelling, but all dried milks have one disadvantage, the liability to cause scurvy, which, fortunately, is easily avoided.

In using either fresh or condensed milk it must be borne in mind that both are easily contaminated,

especially fresh milk, and in very hot weather it is almost impossible to obtain it sufficiently fresh for use as a baby's food; and I must urge the extreme importance of **never giving any milk that is not absolutely sweet**—it is far better to make shift for a feed with a similar quantity of water to which a little sugar has been added rather than risk the damage done by milk which is not quite sweet. In hot weather flies get into the condensed milk tins and soon contaminate it, though it is easier to keep than fresh milk.

Bottles.—The old-fashioned bottle with a long rubber tube is never used now on account of the utter impossibility of keeping it clean. I believe in certain States in America and in France it is prohibited by law. Would that it were so here!

The bottles must be of the boat-shape type and preferably with an opening at either end, so that a good stream of water from a tap can be passed through them, and better still they should be boiled, with their teat and the stopper; this can easily be done by putting into cold water and bringing to the boil, allowing to cool again slowly. In any case a bottle *must be* emptied the *moment* that it is done with and put into water. The teat should not be too thick, so that it can be turned inside out and cleaned. The hole or holes should be of such a size that when the bottle is inverted the food flows in

rapid drops and not in a continuous stream. If the flow is too fast the infant may be frequently sick and have flatulence, or if too slow he does not get enough, and in consequence wastes, a not uncommon cause of mysterious wasting. If you can, avoid bottles altogether and feed by spoon and cup, they are so much more satisfactorily kept clean.

Sometimes milk is too rich, in consequence of which the child does not thrive and has green motions; this, in the case of breast-fed children, is easily corrected, by either lengthening the interval between feeds or by giving the first milk from each breast, using each for four or five minutes only, since the quality is weak at first, increasing in richness as the feed goes on.

In using cow's milk, we can allow it to stand for an hour or so; the top milk is then richer than the lower, and we can choose the quality we require.

Nestlé's milk should be poured into the measuring spoon, which should not be dipped into the tin or too much will be taken up.

CHAPTER IV.

PATENT FOODS.

UP to the present I have only dealt with foods which are entirely milk, but there are on the market many preparations, a few of which are very good, but all contain starch in some form or other, some, such as Allenbury (1 and 2) and Horlick's malted milk, consist of dried milk and completely converted starch, whilst Mellin (malted wheat and barley flour) and one or two more consist of starch which has also been completely converted, but are without milk.

The cause of difficulty with all these foods consisting of starch lies in the fact that in the first few months of life the infant has, practically, no power of digesting starch, the starch-reducing secretions in the saliva and pancreatic juice being almost in abeyance. Thus to give such foods as bread, biscuits, potato, arrowroot and many patent foods *then* is worse than useless, for not only can these not be assimilated but cause flatulence, diarrhoea and kindred troubles at the time, and later on, even if they are tolerated, result in rickets

with its far-reaching consequences. Even that old favourite, barley-water, is not free from trouble.

We can easily demonstrate our own power of converting starch by holding a piece of bread in the mouth for a minute or two and noticing how sweet it has come to taste; the saliva has reduced the insoluble starch into a form of sugar which is easily soluble and absorbed without trouble.

As teeth develop, about the fifth and sixth month usually, the infant begins to slobber, an indication that the salivary and other starch-reducing glands are commencing to work, and then, and not till then, may starchy foods be slowly added to the diet without harm, unless given in too large an amount.

For these reasons we have to be very careful in our choice of a suitable patent food in the early months, and often much harm can be done by the indiscriminate use of any patent food, however much advertised, many of which I consider hurtful for a baby under nine months old. As, in the case of condensed milk, where any food is used which does not require the addition of fresh milk, it is necessary to give, at least after the third month, something like grape, orange, or raw meat juice to prevent scurvy.

The foods I have mentioned above can be used if necessary in the first six months, and Mellin's

has the great advantage of its laxative action where there is constipation, a not uncommon trouble in bottle-fed babies.

Later on there are several foods which can be used, for instance Benger's, Savory and Moore's, Allenbury (No. 3), Robb's biscuits, &c.

Patent foods are very useful in their place, and for a short time ; but, after all, they are at best artificial foods, and not the natural food for children. They may do well to tide us over a difficulty, but the sooner that we return to fresh foods the better.

CHAPTER V.

FEEDING AFTER INFANCY.

UNLESS there be any special reason to the contrary, all children as they approach the age of nine months begin to require a more extended diet and often less of a patent food.

By this time they should have some teeth, which ought to have some work to do, so the slop diet previously used must now begin to be put aside. Bread-crumbs, gravy, bacon fat, bread fried in bacon-fat, a small amount of mashed potato and some lightly boiled yolk of egg, later broths, milk puddings and, towards the eighteenth month, a little minced fish or meat must be given.

There seems a common impression that meat must not be given until a child is about three years old. This is a serious mistake, from which much trouble arises, as the child, who ought to be rapidly developing now, is not having a sufficient diet for the purpose.

From about the age of fifteen months onwards for some years we often see pale, pasty-looking children, with large abdomens, often with some diarrhœa. This is frequently labelled wrongly "consumptive bowels," "tuberculosis," or some similar name, but is simply a dyspepsia due to an excess of starchy

foods, bread, potato, &c., which must be cut off, and eggs, milk and meat substituted.

Tea, coffee, raw fruit, *currants*, beer, stout, tinned meats, oatmeal, porridge, brown or wholemeal bread must not be given on any account to children under three years of age.

Fruit, if used, should be cooked, and is often very useful where there is constipation. It is also sheer waste of money to give the much-advertised meat extracts, and bone extracts; far better and cheaper to give a little fresh beef tea or raw meat juice.

It is a very bad custom to compel children of any age to eat quantities of fat and similar things, which they dislike, for the sake of finishing their helping; this may be good discipline, but it has a bad effect upon the child.

Even young babies, like adults, get thirsty in hot weather especially, and should have a small quantity of plain water to drink; do not give this tepid, but, except in very cold weather, it may be quite cold, being far more refreshing and quite harmless.

Unless ordered by a doctor, *stimulants must not be given* to young children, and unless specially ordered never be continued for more than a few days. In infants 5 to 10 drops of brandy may be ordered by the doctor; these should not be put into the feed and lost, but into a teaspoonful of water or of the feed, and so given, when it will be effective, but not if drowned in the whole feed.

CHAPTER VI.

CLOTHING—SLEEP—TRAINING.

THE clothing for babies and young children must be light and warm and never tight, particularly around the neck. It should be so arranged that the chest, abdomen, and thighs are kept warm by a woollen or flannel vest having long sleeves and which clings to the body, but is not tight enough to restrain movements. No stiff binder must be used. A well-made woollen "overall" or "crawler" will be invaluable when the child begins to crawl, as it obviates chills. There must be plenty of freedom for the baby to breathe without hindrance. Long sleeves and stockings are a necessity, especially where there is a tendency to rickets, which is certainly helped on by cold, which is also a cause contributing to dyspepsia in children. The clothes, too, should not be too numerous, and so designed that there is the smallest amount of pulling about and turning over in dressing and undressing.

A very good method is to dress a delicate child on a pillow, on which the clothes have already been arranged in the order in which they will be put on.

At all times an infant must be kept warm, but not put to swelter in shawls and flannels innumerable, and allowance in this respect made for the temperature prevailing at the time. Cold feet and legs are a not uncommon cause of screaming in children and must be avoided.

Some children persist in kicking off their clothes at night and so catching cold ; harm can easily be prevented by sewing up the bottom of the night-gown, which should be of flannel, and putting the child in at the top, tying or fastening loosely but safely at the neck. If this be done they will never be cold however much they kick. So too young children should not be allowed to sit, as one often sees them, on cold doorsteps or kerb stones, with little or nothing between their skin and the stone ; no doubt it is the root of much unexplained mischief. Elder children want equally warm clothing, particularly if there be any rheumatic tendency in the family.

Fads in clothing, no hats, bare legs and arms in cold weather must be avoided.

Sleep.

Infants and young children require much sleep, and a baby in the first few weeks should sleep about twenty hours out of the twenty-four, being only awake for its feeding. At six months it should

sleep about sixteen to eighteen hours ; at a year fourteen to fifteen hours. All children should sleep the whole night, and have one or more good sleeps during the day.

The capacity for sleep varies much in different children, and much can be done by training from an early date to sleep at certain times. In every case the surroundings must be as quiet as possible, and a child, however young, should not be put to sleep in a room where other children are playing about or people talking. The cot should be screened from light, but not choked up with curtains, &c., and in no case should the light or window be behind the child's head where he can see it by straining his eyes upwards. Good sound sleep is much dependent upon both the amount of out-door fresh air and the air-supply of the room in which he sleeps by day or night.

An infant must not be allowed to lie continually on one side or his back, but must be changed about frequently. *Nor must an infant be allowed to sleep in the same bed as the parents* owing to the very great risk of overlaying—a heavy source of infant mortality in England, and one which ought to be prevented entirely.

Where a cot cannot be afforded, one can easily be improvised from a clothes-basket, crate, or a box.

It is wise to have the cot alongside the mother or

nurse, as if the infant wakes she can with very little disturbance to herself soothe the child and so both get a better rest than if she had to cross the room to the cot. Warmth to the abdomen in the shape of a hot bottle, some warm food, a *dry napkin* and perhaps a hot bath before bedtime all conduce to obtaining satisfactory sleep. I often find that babies five or more months old, who are very cross by day and sleep badly at night, have outgrown the usual amount of food for a child of that age and require the food of one that is two or three months older, and then become satisfactory.

When asleep the eyes are, normally, turned upwards, usually with a squint, and young children when not very well frequently do not quite close the eyelids. This is sometimes a source of great alarm to anxious parents, who have visions of fits and other troubles, but it is nothing to worry about, being quite normal, except that the lids do not quite close. I consider too that the habit some parents have of constantly hugging and kissing young babies is very bad for them, upsetting their nervous equilibrium, but at the same time a *reasonable* amount of notice and playing with does most certainly develop the child's intelligence; he should not be excited near bedtime. Indiscriminate kissing should not be allowed for fear of infection, and animals should not be allowed to lick children for the same reason.

A baby must be carried on either arm equally frequently.

Children should not sleep in the same room with a consumptive parent, and some are of opinion that a rheumatic child should be kept separate from others.

Occasionally children when asleep persist in lying on their stomachs ; this generally means that they are suffering from indigestion, and will require some alteration in the diet ; probably, too, an aperient.

Night terrors are not uncommon in children over the age of infancy. The child will wake up more or less suddenly in the middle of the night in a state of terror and may describe something which has frightened him, and it will usually take a good deal of pacification before he will settle down to sleep again.

This is not a normal state of things in children, as, I am sorry to say, some doctors seem to think. It is usually due to some digestive disturbance, worms, or perhaps enlarged tonsils. In any case a more careful diet for a few days and a mild aperient are very beneficial. Tonsils, if enlarged, must be attended to.

A somewhat similar trouble is a form of "croup," an attack of which may come on about midnight, often on two or three consecutive nights, lasting for two or three hours and then passing off. A similar treatment is necessary.

There is another form of croup, which may come on slowly, perhaps with some soreness of the throat, and will last at least a day or two, probably getting worse rather than better ; this is quite a different thing and needs the attention of a doctor without delay.

Training in Habits of Cleanliness.

This should be begun as early as possible, certainly about the third week. It should be commenced by holding the infant out at regular times, especially soon after feeding. By the end of the first year a child should usually be able to indicate its desires, and should be able to sleep the whole night without emptying its bladder.

The importance of such and similar training in good habits being begun early cannot be over-estimated, for it has far-reaching effects in later life. It is equally important to commence training children very early in the habit of self-control.

CHAPTER VII.

TEETHING AND THE CARE OF THE TEETH.

TEETH usually begin to appear about the sixth month, occasionally earlier; even at birth one may be through, sometimes much later even in otherwise healthy children, more usually in rickets; but all the first teeth should be through by the middle of the third year. The first of the second or permanent teeth, a back tooth, appears about the age of six years. Unfortunately too often the teeth begin to decay very soon, so that precautions should be taken without delay.

Cleaning should be begun at once, first using a soft rag moistened with a little solution of bicarbonate of soda, and later, even at the end of the first year, a soft toothbrush, and as early as possible the child should be taught to use a toothbrush himself, and the parents should see that it is properly done. Even with the first teeth it is very necessary for the mouth to be periodically attended to by a dentist, for carious teeth are a source of ill-health and danger to the child.

There is little doubt but that cutting teeth is a

cause of disturbance of health in many ways, shown by a temporary loss of weight, convulsions, bronchitis, eczema, &c., but though it is a very useful scapegoat, it is by no means correct to overlook the fact that there may be other reasons, for constantly do I find other contributing causes at work, such as improper feeding and constipation, &c. An occasional grey powder given at these times gives much relief and may save great anxiety. Avoid "Teething" powders of any kind, and also *all* "Soothing syrups." They are very dangerous for babies.

Thrush.

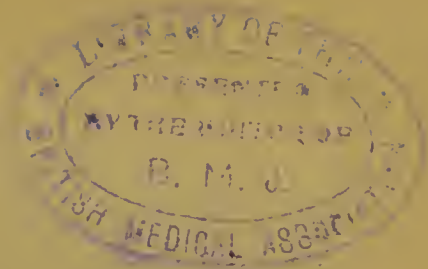
A common occurrence during the first months of life and during any severe wasting disease later in life. This may be caught from improperly cleaned rubber nipples and dummies or passing a bottle on from one child to another. A contributing cause is allowing the child to go to sleep when sucking either at the breast or bottle and so retaining milk in its mouth, therefore the mouth should be cleansed *very carefully* after each feed with a piece of rag or gauze on the finger which has been dipped into water, weak solution of borax, or bicarbonate of soda. The old-fashioned borax and honey is not now considered to be safe.

Another good method of treating it is to tie up

a piece of a formalin, or, better, formamint lozenge, in a piece of muslin or gauze and let the infant suck it for a time.

This is equally good treatment for a sore throat or ulcers in the mouth. It must be borne in mind that thrush is not a necessity in child life, and except perhaps in severe illness reflects upon the nursing.

“Dummies” are almost a necessary evil and so one must not quite condemn them, as they are of some use. They should be abolished as early as possible and *must be kept very clean*. I cannot too strongly condemn the habit of putting a dirty dummy into a child’s mouth, and *no other child* must ever use it.



CHAPTER VIII.

WEIGHT AND ITS VARIATIONS—AIR— EXERCISE.

A HEALTHY infant may, during the first ten days of life, lose weight slightly, but after that should gain steadily, so that at the end of five months the birth weight is doubled, and by the end of the first year should be three times the birth weight. But in healthy children this gain is not always uniform; it may not gain one week and in the next make up double its usual gain per week, and so on.

Very little things hinder this normal gain—a tooth cut, a cold, diarrhœa, and sometimes when growing rapidly in length there is no gain of weight, or even when he commences to run about, then for a time there may be no gain. In any case a loss of more than an ounce or two in one single week, especially if continued for a week or two without apparent cause, should be looked into. The weighing must be on the same scales and by the same person to be accurate. If the weight does not increase over three or four weeks, without illness being the cause, the feeding and general condition must be looked

into, for perhaps the child is not having sufficient food if artificially fed, or there is a failure in the quality of the milk perhaps from causes affecting the mother, such as worry, insufficient food, the return of menstruation, or the commencement of another pregnancy.

Some artificially-fed children who do not seem to be gaining well will often improve very rapidly on giving a small quantity of malt, about half a teaspoonful added to two or three feeds a day.

There are many good preparations of malt on the market. I usually use the Maltine Manufacturing Company's or Wander's Dry Crystalline Extract. The latter, being in the form of a powder, is very easy to add to the bottles.

Air and Exercise.

These are both very necessary for infants, but practically the only exercise they can obtain at first is by crying and kicking; the first of which is of extreme value in developing the lungs and muscles of respiration, and, therefore, must not be too much restrained, and also the binder must be sufficiently loose to allow of easy respiration. Any movements of kicking, especially when being bathed, must be encouraged, and the legs must not be hampered too much with clothing or by constantly lying in a cot or it will be found that the child soon fails to

thrive, owing simply to want of exercise; it should be taken up and carried about from time to time, so as to be able to move the limbs about.

Considering the rapid development and growth going on in babies fresh air is of great importance both by day and night, so after the first few days, unless illness or weather prevent, they should go out at least once daily in summer, but in autumn and winter not until they are a little older. The more a baby can live out of doors the better it will develop.

The bedroom must be well aired every day by open windows, and well ventilated at night; it should not be cold or draughty and may need a fire at night, but there must be an abundant supply of fresh air without draught. In cases of necessity where the room has to be warmed by either a gas or an oil lamp extra care must be taken in the ventilation, the top of the window being kept open slightly.

The register in the chimney should always be open, especially where there is a gas stove, and care taken to see that the chimney is clear.

CHAPTER IX.

CARE AND TREATMENT OF MILK.

MILK when used for infant feeding requires considerable care to ensure its being absolutely fresh and sweet, and should on arrival be at once put into a cool place away from drains or anything that may taint it, covered up with a piece of butter muslin, weighted or fastened so that it does not blow off. This is of course to keep the dust away.

Any jugs or bottles used for keeping milk in should be well cleaned and scalded out with boiling water, being allowed to dry upside down. Fresh milk should, if possible, be obtained twice daily. Skimmed or separated milk is of no use whatever. Similarly, condensed milk tins must be kept in a cool place, covered up to prevent the access of flies and dust.

Opinions vary much as to whether the milk should be boiled or not. If unboiled there is a great risk of carrying infection in one form or another, particularly tubercle. But if boiled it is certainly not quite so good in many ways, it is

more constipating, and there is the risk of causing scurvy, which is less important, as it can easily be guarded against.

I think that the safest plan is a compromise—that is, to have the milk heated until bubbles begin to rise as if it were about to boil, and then cooled down. If in any doubt whatever as to the freedom from infection always have it boiled at once. Sterilized milk is very rarely necessary. It is also of no value to insist on having the milk from one cow. I am sure it is not of such uniform quality, and it is very doubtful whether one gets it.

Peptonized milk is sometimes useful, and easily prepared from preparation like Fairchild's peptonizing powders or similar preparations, the essence of its manufacture being that the milk is usually slightly diluted, the peptonizing agent added and the milk kept at about the temperature of the body for twenty to thirty minutes, during which time the pepsine acts on the milk, and then this action must be stopped by bringing to the boil. If allowed to stand too long it becomes bitter. The milk is now ready for use, and may or may not, according to circumstances, have to be further diluted.

When peptonizing is to be stopped it should not be done suddenly, but the length of time during which the milk stands after the peptonizing agent has been added should be gradually reduced so

that the child gets day by day used to a less and less predigested form of food.

Citrated milk is often very useful as giving a more digestible curd, and is easily made by adding about 3 gr. of citrate of soda to each bottle. (See Appendix.)

CHAPTER X.

CARE OF THE SKIN AND EYES.

Care of the Skin.

AT first the skin of the new-born is of a sort of brick-red colour, which after a week or two disappears, and in a healthy baby should become well "mottled"; this condition of skin lasts for some time and gradually fades away. Being very delicate and tender, at first it is very susceptible of skin disease, and so needs much care in handling. Thorough cleanliness is most important, and strong soaps and much rubbing with rough towels must be avoided. At all ages it should be kept in a good clean condition, and for this purpose a daily bath is a necessity.

This is easy to manage in infants, but sometimes as children get older they are much frightened at the idea of water. This can often be got over by allowing them to have some favourite toy or by covering the bath with a piece of blanket, and slowly lowering the child and blanket into the water.

Napkins must be removed as soon as possible after being soiled, and the child well dried and kept

powdered with some bland powder, not common fuller's earth. Taylor's cimolite is very useful.

For night-wear a napkin enclosing a pad of wood wool, which has great absorbing power, is very useful in keeping the clothes dry.

A frequent cause of "napkin rash" seems to be the use of soda or certain good—but much advertised—soaps in washing the napkins; if any of these are used they must be rinsed frequently and boiled to remove any alkali. It is safest to use good yellow soaps only. After removal of the cause I find they soon get right by using a powder of calamine or calamine and zinc oxide in equal parts—simple starch powder does not do so well.

I have lately had reason to think that eczema has been caused by similar treatment of the child's clothing.

Care of the Eyes.

Babies about the second day sometimes commence with a very troublesome form of ophthalmia, which, unless attended to at once, may lead to total blindness. (If the eyes are carefully attended to immediately after birth this should not be seen; they should be cleansed at once and washed, if possible, with a weak boracic lotion.)

About the second day a slight redness and running of one eye commences, soon to be followed by the other, then the lids become swollen,

puffy, and a mattery discharge begins to appear. It should be attended to by a doctor at once, but if this is not possible, the eyes should be bathed with clean warm water and then gently opened by pulling down the lower lid and a drop of weak boracic lotion dropped in from a dropper or a quill. This must be done frequently to be of any use. The discharge is *very* infectious, and nurses and others unless very careful may easily infect their own eyes with a similar complaint. Any rags used for bathing should be burnt at once, and the dropper should not be allowed to touch the eye, so as to avoid carrying infection.

Milk must not be used for bathing eyes in any case.

The Umbilicus.—The umbilicus or navel where the cord has come off sometimes does not heal well. It is very important that this be kept carefully clean, dried and dusted with boracic powder, never fuller's earth. Sometimes it becomes unduly prominent, forming a small hernia; it should be strapped up, a small disc of bone or cardboard being put over the place and held firmly with strapping. If it is kept back constantly it will soon disappear.

For similar protrusions in the groin, a hernia or rupture, trusses are of very little use, as the child soon outgrows them. A woollen truss is best, and if persevered with the trouble will probably disappear.

CHAPTER XI.

CONSTIPATION—DIARRHŒA—SICKNESS.

Constipation.

A BABY'S bowels should act at least once every day, and oftener if artificially fed. For the first two or three days the motions are of a black, tarry colour, but they should soon assume the normal, rather loose, infantile motion of a mustard colour, having a smooth even condition, containing no lumps, and with very little smell. Usually the motion of a bottle-fed baby is rather paler in colour and of a more solid consistence; towards the end of the first year, when on a larger diet they become darker, and later on formed.

In case of constipation do not use castor oil, which is really rather binding in its effect, but either olive oil, or better, one of the petroleum preparations, pure petroleum for instance, and occasionally give a small grey powder— $\frac{1}{2}$ gr. for babies under five months, 1 gr. for older ones. Castor oil is very useful to clear out once in a way, not as an aperient.

A glycerine enema, *i.e.*, a small $\frac{1}{2}$ -oz. glass syringe, partly filled with warm glycerine, which is injected

into the bowel, will frequently act at once, or the old-fashioned soap cone dipped in glycerine and inserted will do nearly as well; either of these may save a bad night from the ease it gives to a restless constipated baby. Motions which scald the buttocks are often due to the use of barley-water.

Constipation has such lasting effects that it is most important to deal with it early in life, and therefore mothers should see to it that the bowels *do* act, and that they have acted satisfactorily, which can only be done by seeing each motion; and this ought to be done for some years, particularly in girls, who are so apt to lapse into bad habits in this direction, and to suffer much in after life in consequence.

Diarrhœa.

In diarrhœa, particularly in the type prevalent usually in August and September, milk is often the cause both of its starting and continuing. The trouble is, in the first instance, usually caused by milk which is not quite good and kept up by the presence of milk curd in the intestines.

The disease is much less common in the breast-fed, particularly the type known as summer diarrhœa, hence our anxiety in the hot weather to keep babies as far as possible on the breast.

The first thing, therefore, is to cut off the milk, and the best substitute for twenty-four hours is albumen water (*see* Appendix), followed later on by weak broths or beef tea, not recommencing milk until the trouble has stopped.

In one case I had recently, it being difficult to obtain anything else after the albumen water, I tried Horlick's malted milk with complete success.

Sometimes, in the early stage, a dose of nearly a teaspoonful of castor oil will stop it by removing the irritating milk in the intestines; but I find a very simple remedy for diarrhœa is from four to five drops of castor oil given three times daily. This can easily be done by putting the drops on the handle of a teaspoon and rubbing it on the tongue.

Sickness.

One often hears that children are constantly sick, and we have to be careful to distinguish between the possetting up of a small quantity of food—probably because it has been taken too fast, this most babies do and it means nothing—and true vomiting. But true vomiting, when a large quantity of fluid is ejected with force through the mouth and perhaps the nose, is a very different thing. Of course this may happen from time to time as in adults, and may be of no import, but frequent

vomiting, especially if the child is wasting or has diarrhœa, must be attended to.

Sickness can often be much relieved by small feeds, such as a couple of teaspoonfuls repeated at intervals of about half an hour.

Water for drinking purposes may with advantage be boiled, and should always be in the country ; but before use it is well to re-aerate it by pouring it backwards and forwards from two jugs, or it will be very "heavy."

In breast-fed children water is sometimes very useful in relieving constipation. The method is to give a teaspoonful or two, or even more, two or three times a day, just before giving the breast.

CHAPTER XII.

CONVULSIONS—VACCINATION—RHEUMATISM.

Convulsions.

ONE often hears a mother say that her baby has been very convulsed for several days, but this is hardly correct ; what she usually means is that there has been a slight blueness around the mouth with an occasional twitching, the whole probably due to a slight amount of constipation or perhaps a slight error in feeding. This is easily relieved by an aperient.

In a true convulsion the child will perhaps suddenly go pale, rolling the eyes up, fixing them and then begin to twitch, and this twitching will spread all over the body ; the breath being held, he goes blue, with frothing at the mouth. After a time, from a minute or two in some cases to more than half-an-hour in others, the whole state of affairs will pass off and he will fall into a deep sleep and probably later on wake up again all right. There may be only one attack or many, and perhaps spread over a long time.

Often a fit in a child is the starting-point of some

disease like pneumonia, taking the place of the usual rigor in an adult. The most frequent cause is improper feeding, particularly anything that will irritate the intestines, as for instance *currants*, orange or apple, oatmeal, or no cause may be found. The sleep afterwards should be encouraged.

A young child in a fit should at once be undressed and put into a bath as hot as can be borne, whilst cold water is sponged over the head, face and back of neck, and a doctor sent for.

Attention to food and an aperient such as a dose of castor oil should be given. Older children should be kept from injuring themselves, and a piece of wood fastened to a string got in between the teeth to prevent biting the tongue, but these are a different type of "convulsion" from those of infancy.

Frequent "faints" in a child need attention, for they do not usually faint at this age.

Vaccination.

Vaccination is a most important thing in dealing with children and should be done early, certainly by the time the child is four months old. There can be no question about the efficiency of vaccination against small-pox, as has been demonstrated many times.

The risk of vaccination under modern methods is so small as to be almost negligible. From the

moment of vaccination until the arm has healed again the arm should be protected with something clean, such as a proper pad, which after the first few hours may with benefit be kept dusted with boracic powder. The arm should not be fingered, nor should coloured clothes touch it. When at the height a small grey powder or two is very useful.

Rheumatism.

Rheumatism, I may say, is never known in children under two years of age, so that any painful limb or swelling of limb or joint at this age must be looked upon as something serious and attended to at once by a doctor. Later on rheumatism is sadly too common, but it is so slight in its pain that it frequently passes unheeded by nurses and mothers and serious trouble results.

“Growing pains” as such do not exist; they are the pains of rheumatism, as many a child has learnt to its cost. Neither is it usual for rheumatism to linger long in one joint only.

Too frequently one sees children who have for some time complained of pain in one knee and thigh, which has been passed off as “only rheumatism” by parents until a limp or some other sign calls attention to serious disease of the hip.

In any case of rheumatism the child needs extra care in clothing, flannel next the skin, warm stockings,

and good boots to keep the feet from damp, and the avoidance of damp clothes or surroundings and of fatigue.

Rheumatism in young children is so frequently followed by heart trouble that it is always an anxiety, however slight it may be.

The late Dr. Cheadle, who did so much for childhood, used to say that measles and whooping cough were responsible for a very great deal of disease and mortality amongst children, not so much by the diseases themselves as by their after-effects.

This is only too true, for they are *much* neglected in the commencement, and allowed to linger on for want of care, with resulting permanent and often fatal damage.

They are very infectious in the earliest stages, and so should be dealt with at once, the child being isolated, and having every care taken of him particularly to avoid chills.

Conclusion.

Infant health workers have many difficulties to contend with in their work which will require much patience.

Owing to the peculiar circumstances of the work, much that one would wish to do is impossible, so that it seems to resolve itself into using much tact and the materials which we have at hand at the

time. Sometimes we have to make shift with a food which we know to be unsuitable, on account of poverty. I sincerely hope that, when our schools for mothers are on a better and permanent basis (in the near future), it will be possible to deal with such cases satisfactorily, for our numbers are increasing so fast that we shall have to raise more funds for the work, which requires much more scientific training than outsiders realize, to judge by letters in the daily press.

We are often met with the argument that other children of the same family have been brought up, apparently satisfactorily, on a method which we know to be wrong—possibly this is owing to some inherent peculiarity in that family—but that is no reason for continuing it with another member.

It may be wise in some cases to “let well alone,” keeping a very watchful eye for any untoward contingencies.

I have in this book gone beyond the sphere of infancy in a few instances, as I well know that “visitors” are expected to know everything about children, and have thought it wise to touch upon a few outside matters which are of common occurrence for their help and guidance.

APPENDIX.

ALBUMEN WATER.

Take the white of a fresh raw egg; cut it in various directions with a pair of clean scissors. Shake it up with a tumblerful of cold water. Add a pinch of salt or a little white sugar, and strain through muslin.

Give the child as much of this as it will take every two or three hours.

WHEY.

Warm a pint of milk to a point that can be comfortably borne by the finger. Add a teaspoonful of Clark's, Lazenby's, or Crosse and Blackwell's rennet and cover with a tea cosy or keep warm by the fire. After half-an-hour break up the curd very thoroughly with a fork and strain through two layers of fine muslin. Keep the whey in a cool place till it is required for the child.

RAW MEAT JUICE.

Scrape $\frac{1}{4}$ lb. lean raw beef into a saucer, cover it with *cold* water, leave it standing in a cool place for an hour, and then strain through muslin. The juice to be given to the child as directed.

RICE WATER.

Soak two heaped tablespoonfuls of rice, which has been previously washed, for three hours in a quart of warm water, then allowing the mixture to simmer for an hour before straining.

BARLEY WATER.

Make from "prepared barley" one teaspoonful to a pint of water, and boiled for at least five minutes.

POTATO CREAM.

Take the floury part just inside the skin of a baked potato and rub it down with milk to the consistence of thin cream. Useful for scurvy.

CITRATE OF SODA SOLUTION.

Citrate of soda $2\frac{1}{2}$ gr., chloroform water to 1 dr. This can be made up to 8 oz. and a teaspoonful used each feed.

BORACIC ACID LOTION FOR EYES.

Boracic acid 5 gr., water 1 oz.

POULTICES.

Poultices for infants' chests must not be made too thick and heavy, and should be of such a size that only one is used, which covers the back and sides, the front not being completely covered.

PNEUMONIA JACKET.

A pneumonia jacket is often better than a poultice, for it does not get cold and require frequently changing; it is made by taking a piece of Gamgee tissue or a layer of wool between two layers of muslin sufficiently long to reach round the chest, and wide enough to cover all the ribs. In the middle is a hole towards the upper border, through which one arm goes, the edges being tied together with tapes on the opposite side, one tape being above, the rest below the arm.

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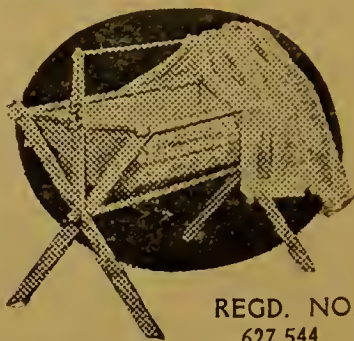
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